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Development of a Wide-Field CMOS Camera: Tomo-e Gozen and Contributions to EM Follow-up Observations of Gravitational Wave Events

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We are developing a wide-field CMOS camera, Tomo-e Gozen, which will be mounted on the $105\,\mathrm{cm}$ Schmidt telescope at the Kiso Observatory, the University of Tokyo. The Tomo-e Gozen camera is composed of four camera modules, each of which is equipped with 21 CMOS image sensors with 1 arcsec/pix. The Tomo-e Gozen captures a sky of about 20-sq degree without any overhead due to readout time. Thus, the Tomo-e Gozen has a high survey efficiency which is beneficial to identify gravitational wave (GW) event sources. A prototype of the Tomo-e Gozen camera with 8 CMOS image sensors was developed and we confirmed that a limiting magnitude at the V-band is about $19\,\mathrm{mag}$. for one second integration as designed. Development of one of the four camera modules is ongoing and will be completed by the end of 2017. The first light of the Tomo-e Gozen camera with the four camera modules is scheduled in 2018.

Auteur principal: OHSAWA, Ryou (Institute of Astronomy, University of Tokyo)

Co-auteurs: USUI, Fumihiko (CPS, Kobe University); TAKAHASHI, Hidenori (IoA, University of Tokyo); MAE-HARA, Hiroyuki (National Astronomical Observatory of Japan); WATANABE, Junichi (National Astronomical Observatory of Japan); MITSUDA, Kazuma (IoA, University of Tokyo); TARUSAWA, Ken'ichi (Kiso, IoA, University of Tokyo); MOTOHARA, Kentaro (IoA, University of Tokyo); ARIMATSU, Ko (National Astronomical Observatory of Japan); ICHIKI, Makoto (IoA, University of Tokyo); DOI, Mamoru (IoA, University of Tokyo); KONISHI, Masahiro (IoA, University of Tokyo); TANAKA, Masaomi (National Astronomical Observatory of Japan); MORII, Mikio (The Institute of Statistical Mathematics); SATO, Mikiya (The Nippon Meteor Society); KOKUBO, Mitsuru (Tohoku University); KOBAYASHI, Naoto (IoA, University of Tokyo); ARIMA, Noriaki (IoA, University of Tokyo); MAT-SUNAGA, Noriyuki (DoA, University of Tokyo); TOMINAGA, Nozomu (Konan University); URAKAWA, Seitaro (Japan Spaceguard Association); SAKO, Shigeyuki (IoA, University of Tokyo); OKUMURA, Shin-ichiro (Japan Spaceguard Association); IKEDA, Shiro (The Institute of Statistical Mathematics); SOYANO, Takao (Kiso, IoA, University of Tokyo); MIYATA, Takashi (IoA, University of Tokyo); TOTANI, Tomohiro (DoA, University of Tokyo); MOROKUMA, Tomoki (IoA, University of Tokyo); KASUGA, Toshihiro (National Astronomical Observatory of Japan); SHIGEYAMA, Toshikazu (RESCEU, University of Tokyo); AOKI, Tsutomu (Kiso, IoA, University of Tokyo); ITA, Yoshifusa (Tohoku University); NAKADA, Yoshikazu (Kiso, IoA, University of Tokyo); MORI, Yuki (Kiso, IoA, University of Tokyo); SARUGAKU, Yuki (Kiso, IoA, University of Tokyo); KOJIMA, Yuto (IoA, University of Tokyo)

Orateur: OHSAWA, Ryou (Institute of Astronomy, University of Tokyo)

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